

REMARKS

In view of the above amendments and the following remarks, reconsideration and further examination are respectfully requested.

I. Information Disclosure Statement

Item 5 of the Office Action indicates that reference “AO” of the FORM PTO 1449 filed on September 26, 2006 was not considered because a publication date was not included in the description of the reference.

As discussed on the telephone with Examiner Nofal, a publication date is included in the description of reference “AO.” However, the publication date is described in Japanese date format. Specifically, it is respectfully submitted that the phrase “Heisei 7 Nen 2 Gatsu 18 Nichi” actually indicates a publication date of February 18, 1995. Support for the date translation is included in the attached document. More specifically, Heisei 7 Nen represents the seventh year of Emperor Heisei, which is 1995, 2 Gatsu represents February, and 18 Nichi represents the 18th day.

Thus, it is respectfully submitted that the publication date of February 18, 1995 is included in the description of reference “AO,” and consideration of reference “AO” is respectfully requested.

II. Objection to the Specification and Abstract

The specification and abstract have been reviewed and revised to improve their English

grammar as well as address the informalities identified on pages 3 and 4 of the Office Action. Specifically, as requested in the objection of the abstract, the abstract is now limited to 1 paragraph and 150 words or less. In addition, as request in the objection of the specification, the specification has been amended to clarify the terminology "information recording medium." Specifically, the specification has been amended to clarify that a computer-readable recording medium is an example of an information recording medium. Therefore, withdrawal of these objections is respectfully requested.

The amendments to the specification and abstract have been incorporated into a substitute specification and abstract. Attached are two versions of the substitute specification and abstract, a marked-up version showing the revisions, as well as a clean version. No new matter has been added.

III. Objection the Drawings

Figures 1-4 were objected to for not being identified as prior art. As mentioned above, proposed drawing amendments are submitted herewith under a separate cover letter.

Specifically figures 1-4 have been amended to be identified as prior art. Thus, withdrawal of the above-mentioned objection is respectfully requested. In addition, figure 17 has been amended to replace the Japanese text with the term "Decoder."

These drawing amendments are editorial in nature and do not add new matter to the application.

IV. Informalities

Claim 5 was objected in view of various informalities identified on page 4 of the Office Action. Withdrawal of this objection is respectfully submitted since claim 5 has been amended to resolve the problems identified by the Examiner.

V. 35 U.S.C. § 101 Rejection of Claims 1-5

Claims 1-5 were rejected under 35 U.S.C. § 101 for reciting a “multiplexer,” which is allegedly non-statutory subject matter. Claims 1-5 have been amended to recite a “multiplexing apparatus,” in order to clarify that the claimed invention is directed to an apparatus/machine. Thus, withdrawal of this 35 U.S.C. § 101 rejection is respectfully requested.

Claims 6 and 7 were rejected under 35 U.S.C. § 101 for reciting “an information recording medium,” for which the specification allegedly provides no antecedent basis. Claims 6 and 7 have been amended to recite a computer-readable recording medium having data recorded thereon. More specifically, claims 6 and 7 now recite that the computer-readable recording medium requires a structure having a specific type of data being recorded thereon. As mentioned above, the specification has also been amended to identify that a computer-readable recording medium is an example of an information recording medium. Therefore, claims 6 and 7 now recite statutory subject matter and, as a result, withdrawal of the above-mentioned rejection is respectfully requested.

Claim 12 was rejected under 35 U.S.C. § 101 for being directed to software alone. Claim 12 has been amended to recite a computer-readable recording medium having a program

recorded thereon, wherein the program causes a computer to execute a specific method.

Therefore, claim 12 is now directed to statutory subject matter and, as a result, withdrawal of this rejection is respectfully requested.

VI. 35 U.S.C. § 103(a) Rejection of Claims 1-4, 6, 11 and 12

Claims 1-4, 6, 11 and 12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Bachman (U.S. 4,068,300), Tiernan et al. (U.S. 6,172,988), or Goudie et al. (U.S. 2002/0129213).

Initially, it is noted that claims 1, 3-7, 11 and 12 have been amended to make a number of editorial revisions thereto. These editorial revisions have been made to place the claims in better U.S. form. Further, these editorial revisions have not been made to narrow the scope of protection of the claims, or to address issues related to patentability, and therefore, these amendments should not be construed as limiting the scope of equivalents of the claimed features offered by the Doctrine of Equivalents.

Claims 2, 8-10, 13 and 14 have been cancelled without prejudice or disclaimer of the subject matter contained therein. Further, independent claims 1, 6 and 11 have been amended to clarify features of the invention recited therein and to further distinguish the present invention from the references relied upon in the above-mentioned rejection. Thus, the above-mentioned rejection is believed clearly inapplicable to amended independent claims 1, 6 and 11 and the claims that depend therefrom for the reasons discussed below.

Amended independent claim 1 recites a multiplexing apparatus including (1) a sub-descriptor generating unit operable to generate sub-descriptors, each sub-descriptor including side information and including a sub-tag value representing a type of the side information. In addition, claim 1 recites that the multiplexing apparatus includes (2) a main descriptor generating unit operable to generate a main descriptor including the generated sub-descriptors, and including a main tag value representing a set of the sub-descriptors. Further, claim 1 recites that the multiplexing apparatus includes (3) a table generating unit operable to generate table data by associating the generated main descriptor with a packet identifier of the coded data. Claim 1 also recites that (4) the sub-descriptor generating unit is operable to sort and output the sub-descriptors in an order such that the sub-descriptors are arranged in the main descriptor in an ascending order according to the sub-tag value of each sub-descriptor, wherein each sub-tag value is a natural number.

The above described structure will allow a decoder for decoding video or audio data to reliably and efficiently analyze the side information because the decoder can identify and analyze the sub-descriptors including the side information in the ascending order based on the sub-tag values.

Applicants admitted prior art, Bachman, Tiernan and Goudie, or any combination thereof, fail to disclose or suggest above-mentioned distinguishing features (1)-(4) as recited in independent claim 1 and fails to disclose or suggest the above-identified result of the structure required by independent claim 1.

Initially, please note that the above-described 35 U.S.C. § 103(a) relies on Applicants admitted prior art for teaching the above-described main descriptor generating unit and the table generating unit, and relies on Bachman, Tiernan and Goudie for each teaching the above-described sub-descriptor generating unit, as recited in claim 1.

However, Applicants admitted prior art merely teaches a descriptor generating unit 901 that generates a descriptor and a table generation unit 902 that generates a program map table including the generated descriptor (see paragraph [0018] and Fig. 4). Based on this configuration the table generation unit 902 is merely configured to generate a map table including a descriptor. Thus, in view of the above, and as acknowledged by the Examiner, Applicants admitted prior art fails to disclose or suggest the sub-descriptor generating unit, as required by claim 1.

In addition, in view of the above, it is clear that Applicants admitted prior art merely teaches that the table generation unit 902 generates a map table including a descriptor, but fails to disclose or suggest the table generating unit operable to generate table data by associating the generated main descriptor (including the generated sub-descriptors, and including a main tag value representing a set of the sub-descriptors) with a packet identifier of the coded data, as required by claim 1. In other words, the Applicants' admitted prior art's disclosure of a table generation unit, which generates a table based on a descriptor (not including sub-descriptors or a main tag value representing the sub-descriptors) is not a disclosure or suggestion of the table generating unit that associates the main descriptor including sub-descriptors and the main tag value representing the sub-descriptors with the packet identifier, as required by claim 1.

Thus, even if Bachman, Tiernan or Goudie were to disclose the features of the sub-descriptor generating unit, as recited in claim 1, the table data generating unit 902 of the admitted prior art still fails to disclose or suggest the table generation unit that receives the main descriptor including sub-descriptors and the main tag value representing the sub-descriptors, as required by claim 1.

However, regarding Bachman, which was relied upon for teaching the sub-descriptor generating unit, as recited in claim 1, it is evident that Bachman teaches associating files with file descriptors that identify file numbers and page numbers of a respective file, associating logical records with record descriptors, and associating logical fields with field descriptors (see col. 5, lines 51-60).

Thus, in view of the above, it is apparent that Bachman merely teaches that files, records and fields are associated with descriptors, but fails to disclose or suggest generating sub-descriptors, each including side information and a sub-tag value representing a type of the side information, as required by claim 1.

In addition, it is clear that Bachman merely teaches using descriptors, but fails to disclose or suggest sub-descriptors used by a table generating unit that associates the main descriptor including sub-descriptors and the main tag value with the packet identifier, as required by claim 1.

Moreover, Bachman merely teaches using descriptors to describe information, but fails to disclose or suggest that sub-descriptor generating unit sorts and outputs the sub-descriptors in an order such that the sub-descriptors are arranged in the main descriptor in an ascending order

according to the sub-tag value of each sub-descriptor, wherein each sub-tag value is a natural number, as required by claim 1.

Regarding Tiernan, which was relied upon for teaching the sub-descriptor generating unit, as recited in claim 1, it is evident that Tiernan teaches that each descriptor is identified by a value of a descriptor-tag field (see col. 15, lines 12-29).

However, Tiernan's disclosure of a descriptor being identified by a value of a field is not a disclosure or suggestion of: (i) generating sub-descriptors, each including side information and a sub-tag value representing a type of the side information, as required by claim 1; (ii) sub-descriptors used by a table generating unit that associates the main descriptor including sub-descriptors and the main tag value with the packet identifier, as required by claim 1; or (iii) sorting and outputting the sub-descriptors in an order such that the sub-descriptors are arranged in the main descriptor in an ascending order according to the sub-tag value of each sub-descriptor, wherein each sub-tag value is a natural number, as required by claim 1.

Regarding Goudie, which was relied upon for teaching the sub-descriptor generating unit, as recited in claim 1, it is evident that Goudie teaches a read descriptor and a write sub-descriptor for storing data in a queue (see paragraph [0052]).

However, Goudie also fails to disclose or suggest: (i) generating sub-descriptors, each including side information and a sub-tag value representing a type of the side information, as required by claim 1; (ii) sub-descriptors used by a table generating unit that associates the main descriptor including sub-descriptors and the main tag value with the packet identifier, as required by claim 1; or (iii) sorting and outputting the sub-descriptors in an order such that the sub-

descriptors are arranged in the main descriptor in an ascending order according to the sub-tag value of each sub-descriptor, wherein each sub-tag value is a natural number, as required by claim 1.

Therefore, because of the above-mentioned distinctions it is believed clear that claim 1 and claims 3-5 that depend therefrom would not have been obvious or result from any combination of Applicants admitted prior art, Bachman, Tiernan and/or Goudie.

In addition, it is noted that no obvious combination of Applicants admitted prior art, Bachman, Tiernan and/or Goudie would result in a structure allowing a decoder for decoding video or audio data to reliably and efficiently analyze the side information because the decoder can identify and analyze the sub-descriptors including the side information in the ascending order based on the sub-tag values, as described above regarding claim 1.

For the reasons discussed above there is no disclosure or suggestion in Applicants admitted prior art, Bachman, Tiernan and/or Goudie or elsewhere in the prior art of record which would have caused a person of ordinary skill in the art to modify Applicants admitted prior art, Bachman, Tiernan and/or Goudie to obtain the invention of independent claim 1. Accordingly, it is respectfully submitted that independent claim 1 and claims 3-5 that depend therefrom are clearly allowable over the prior art of record.

Amended independent claims 6 and 11 are directed to a computer-readable recording medium and a method, respectively and each recite features that correspond to the above-mentioned distinguishing features of independent claim 1. Thus, for the same reasons discussed above, it is respectfully submitted that independent claims 6 and 11 and claims 7 and 12 that

depend therefrom are allowable over Applicants admitted prior art, Bachman, Tiernan and Goudie.

VII. 35 U.S.C. § 103(a) Rejection of Claims 5 and 7

Dependent claims 5 and 7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the above-identified references in view of Takahashi et al. (U.S. 6,449,352).

However, as discussed above, Applicants admitted prior art, Bachman, Tiernan and Goudie do not disclose or suggest the invention recited in independent claims 1 and 6. Claims 5 and 7 depend on claims 1 and 6, respectively. Therefore, Takahashi also does not disclose or suggest the invention recited in claim 5 and 7. Thus, at least, due to their dependence on claims 1 and 6, claims 5 and 7 would not have been obvious in view of Applicants admitted prior art, Bachman, Tiernan, Goudie and Takahashi.

VIII. Conclusion

In view of the above amendments and remarks, it is submitted that the present application is now in condition for allowance and an early notification thereof is earnestly requested. The Examiner is invited to contact the undersigned by telephone to resolve any remaining issues.

Respectfully submitted,

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Japanese Date Conversion

| | | | | | |
|---------------------|------|----------|------|---------------------|------|
| Meiji 33 | 1900 | Showa 9 | 1934 | Showa 43 | 1968 |
| Meiji 34 | 1901 | Showa 10 | 1935 | Showa 44 | 1969 |
| Meiji 35 | 1902 | Showa 11 | 1936 | Showa 45 | 1970 |
| Meiji 36 | 1903 | Showa 12 | 1937 | Showa 46 | 1971 |
| Meiji 37 | 1904 | Showa 13 | 1938 | Showa 47 | 1972 |
| Meiji 38 | 1905 | Showa 14 | 1939 | Showa 48 | 1973 |
| Meiji 39 | 1906 | Showa 15 | 1940 | Showa 49 | 1974 |
| Meiji 40 | 1907 | Showa 16 | 1941 | Showa 50 | 1975 |
| Meiji 41 | 1908 | Showa 17 | 1942 | Showa 51 | 1976 |
| Meiji 42 | 1909 | Showa 18 | 1943 | Showa 52 | 1977 |
| Meiji 43 | 1910 | Showa 19 | 1944 | Showa 53 | 1978 |
| Meiji 44 | 1911 | Showa 20 | 1945 | Showa 54 | 1979 |
| Meiji 45 / Taisho 1 | 1912 | Showa 21 | 1946 | Showa 55 | 1980 |
| Taisho 2 | 1913 | Showa 22 | 1947 | Showa 56 | 1981 |
| Taisho 3 | 1914 | Showa 23 | 1948 | Showa 57 | 1982 |
| Taisho 4 | 1915 | Showa 24 | 1949 | Showa 58 | 1983 |
| Taisho 5 | 1916 | Showa 25 | 1950 | Showa 59 | 1984 |
| Taisho 6 | 1917 | Showa 26 | 1951 | Showa 60 | 1985 |
| Taisho 7 | 1918 | Showa 27 | 1952 | Showa 61 | 1986 |
| Taisho 8 | 1919 | Showa 28 | 1953 | Showa 62 | 1987 |
| Taisho 9 | 1920 | Showa 29 | 1954 | Showa 63 | 1988 |
| Taisho 10 | 1921 | Showa 30 | 1955 | Showa 64 / Heisei 1 | 1989 |
| Taisho 11 | 1922 | Showa 31 | 1956 | Heisei 2 | 1990 |
| Taisho 12 | 1923 | Showa 32 | 1957 | Heisei 3 | 1991 |
| Taisho 13 | 1924 | Showa 33 | 1958 | Heisei 4 | 1992 |
| Taisho 14 | 1925 | Showa 34 | 1959 | Heisei 5 | 1993 |
| Taisho 15 / Showa 1 | 1926 | Showa 35 | 1960 | Heisei 6 | 1994 |
| Showa 2 | 1927 | Showa 36 | 1961 | Heisei 7 | 1995 |
| Showa 3 | 1928 | Showa 37 | 1962 | Heisei 8 | 1996 |
| Showa 4 | 1929 | Showa 38 | 1963 | Heisei 9 | 1997 |
| Showa 5 | 1930 | Showa 39 | 1964 | Heisei 10 | 1998 |
| Showa 6 | 1931 | Showa 40 | 1965 | Heisei 11 | 1999 |
| Showa 7 | 1932 | Showa 41 | 1966 | Heisei 12 | 2000 |
| Showa 8 | 1933 | Showa 42 | 1967 | Heisei 13 | 2001 |

Japanese counter word

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In Japanese, **counter words** or **counters** (*jōsūshi* 助数詞) are used along with numbers to count things, actions, and events.

In Japanese, as in Chinese and Korean, numerals cannot quantify nouns by themselves (except, in certain cases, for the numbers from one to ten; see below). For example, to express the idea "two dogs" in Japanese one must say *inu nihiki* (犬二匹, literally "dog two-small-animal"). Here *inu* 犬 means "dog", *ni* 二 is the number 2, and *hiki* 匹 is the **counter** for small animals. The counters are not independent words and always appear with a number before them.

Counter words are similar in function to the word "sheet" in "two sheets of paper" or "cup" in "two cups of coffee", but in Japanese, (almost) all nouns require a counter. In this sense, all Japanese nouns are mass nouns. This grammatical feature can result in situations where one is unable to express the number of a particular object in a grammatically correct way because one does not know, or cannot remember, the appropriate counting word. The problem is partially solved for the numbers from one to ten by using the traditional numbers (see below) which can be used to quantify some nouns by themselves. For example, "four apples" is *ringo yonko* (リンゴ四個) where *ko* (個) is the counter), but can also be expressed using the traditional numeral four as *ringo yottsū* (リンゴ四つ). These traditional numerals cannot be used to count all nouns however; some, including people and animals, require the proper counter.

Counters can also be intentionally misused for humorous, sarcastic, or insulting effects. For example, one might say 男一匹なの (Otoko ippiki nano *ni*; "I am only one man..."). Using the counter *hiki* (匹), the counter for small animals, humorously suggests that the person is overpowered by massive obstacles.

Some of the more common counters may be used instead of less common ones. For example, 匹 *hiki* (see below) is often used for all animals, regardless of size. However, many speakers will correct themselves and use the traditionally "correct" counter, 頭 *tō*, when speaking of, for example, horses.

Just as in English, different counters for the same thing can be used to convey different meanings. In English, one can say *one loaf of bread* or *one slice of bread*, and the referent is different. In Japanese, the same effect is made by saying パン一斤 *pan ikken*, literally "bread one-loaf" versus パン一枚 *pan ichimai*, literally "bread one-flat piece".

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Table of the traditional numerals

| Numeral | Japanese | Pronunciation (romaji) | Pronunciation (hiragana) |
|---------|----------|------------------------|--------------------------|
| 1 | 一つ | <i>hitotsu</i> | ひとつ |
| 2 | 二つ | <i>futatsu</i> | ふたつ |
| 3 | 三つ | <i>mittsu</i> | みっつ |
| 4 | 四つ | <i>yottsu</i> | よっつ |
| 5 | 五つ | <i>itsutsu</i> | いっつ |
| 6 | 六つ | <i>muttsu</i> | むっつ |
| 7 | 七つ | <i>nanatsu</i> | ななつ |

| | | | |
|----|----|-------------------------------|------|
| 8 | 八つ | <i>yattsu</i> | やっつ |
| 9 | 九つ | <i>kokonotsu</i> | ここのつ |
| 10 | 十 | <i>tō</i> | とお |
| 20 | 二十 | <i>hatachi</i> (used for age) | はたち |

List of counters

This list also includes some counters and usages that are rarely used or not widely known.

| Pronunciation | Japanese | Use |
|------------------------------------|----------|-------------------------------------------------------------------------------------------|
| <i>ba</i> | 場 | Scene of a play |
| <i>bai</i> | 倍 | Multiples, -fold as in "twofold" |
| <i>ban</i> | 晩 | Nights (see also: <i>ya</i>) |
| <i>ban</i> | 番 | Sports matches |
| <i>bi</i> | 尾 | Small fish and shrimps (used in the fish trade; most people say <i>hiki</i> instead) |
| <i>bu</i> | 部 | Copies of a magazine or newspaper, or other packets of papers |
| <i>bun</i> | 文 | Sentences |
| <i>byō</i> | 秒 | Seconds |
| <i>byōshi</i> | 拍子 | Musical beats |
| <i>chaku</i> | 着 | Suits of clothing (see also: <i>mai</i>) |
| <i>chō</i> | 挺 | Guns, sticks of ink, palanquins, rickshaws, violins |
| <i>chō</i> | 丁 | Tools, scissors, saws, trousers, pistols, cakes of tofu, town blocks, |
| <i>chō</i> | 町 | Town blocks |
| <i>dai</i> | 代 | Generations, periods, reigns |
| <i>dai</i> | 台 | Cars, bicycles, machines, mechanical devices, household appliances |
| <i>danraku</i> | 段落 | Paragraphs |
| <i>dō</i> , also <i>tabi</i> | 度 | Occurrences, number of times, degrees of temperature or angle (see also: <i>kai</i>). |
| <i>fuku, puku</i> | 服 | Bowls of <i>matcha</i> (powdered green tea); packets or doses of powdered medicine |
| <i>fuku, puku</i> | 幅 | Hanging scrolls (<i>kakejiku</i>) |
| <i>fun, pun</i> | 分 | Minutes |
| <i>furi</i> | 振 | Swords |
| <i>gakkyū</i> | 学級 | Classes (in pre-university education) |
| * <i>gatsu</i> , also <i>tsuki</i> | 月 | Months of the year. Month-long periods when read <i>tsuki</i> (see also: <i>kagetsu</i>) |
| <i>go</i> | 語 | Words |
| <i>gon</i> , also <i>koto</i> | 言 | Words |
| <i>gu</i> | 具 | Suits of armour, sets of furniture |
| <i>gyō</i> | 行 | Lines of text |

| | | |
|----------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>haku</i> | 泊 | Nights of a stay |
| <i>hai</i> | 杯 | Cups and glasses of drink, spoonfuls, cuttlefish, octopuses, crabs, squid, abalone, boats (slang) |
| <i>hai</i> | 敗 | Losses (sports bouts) |
| <i>hari</i> | 張 | Umbrellas, parasols, tents |
| <i>hashira</i> | 柱 | Gods, memorial tablets |
| <i>hatsu, patsu</i> | 発 | Gunshots, bullets, aerial fireworks |
| <i>hiki, piki</i> | 匹 | Small animals, insects, fish, reptiles, amphibians, oni (ogres) |
| <i>hin, pin</i> | 品 | Parts of a meal, courses (see also: <i>shina</i>) |
| <i>ho, po</i> | 歩 | Number of (foot)steps |
| <i>hon, pon, bon</i> | 本 | Long, thin objects: rivers, roads, train tracks, ties, pencils, bottles, guitars; also, metaphorically, telephone calls, train or bus routes, movies (see also: <i>tsūwa</i>), points or bounds in sports events. Although 本 also means "book", the counter for books is <i>satsu</i> . |
| <i>hyō</i> | 票 | Votes |
| <i>ji</i> | 字 | Letters, kanji, kana |
| <i>ji</i> | 児 | Children. As in 'father of two (children)', etc. |
| <i>ji</i> | 時 | Hours of the day |
| <i>jikan</i> | 時間 | Hour-long periods |
| <i>jō</i> | 畳 | Tatami mats. The kanji 畳 is also read <i>tatami</i> and is the same one used for the mats. The room size of a washitsu in Japan is given as a number of mats, for example 4½ <i>jō</i> |
| <i>jō</i> | 錠 | Pills/capsules |
| <i>ka</i> | 日 | Day of the month |
| <i>ka</i> | 架 | Frames |
| <i>ka</i> | 課 | Lessons |
| <i>kabu</i> | 株 | Stocks; nursery trees |
| <i>kagetsu</i> | ヶ月, 箇月 | Month-long periods (see also: <i>gatsu</i>). 箇 is normally abbreviated using a small katakana ケ in modern Japanese. Alternatively 個, hiragana か, small katakana カ and full-size katakana カ & ケ can also be seen, although only か is similarly frequent. |
| <i>kakoku</i> | ヶ国, 箇国 | Countries |
| <i>kakokugo</i> | ヶ国語, 箇国語 | (National) languages |
| <i>kaku</i> | 画 | Strokes in kanji |
| <i>kai</i> | 回 | Occurrences, number of times (see also: <i>do</i>) |
| <i>kai</i> | 階 | Number of floors, stories |
| <i>kan</i> | 貫 | Pieces of nigiri-zushi |
| <i>kan</i> | 艦 | Warships |
| <i>ken</i> | 件 | Abstract matters and cases |
| <i>ken</i> | 軒 | Houses |

| | | |
|----------------------|---------------|----------------------------------------------------------------------------------------------------------------|
| <i>ki</i> | 機 | Aircraft, machines |
| <i>ki</i> | 基 | Graves, wreaths, CPUs, reactors, elevators, dams |
| <i>kire</i> | 切れ | Slices (of bread, cake, sashimi etc.) |
| <i>ko</i> | 個, 箇, 个, or ケ | General measure word, used when there is no specific counter. 個 is also used for military units. |
| <i>ko</i> | 戸 | Houses (戸 means "door") |
| <i>kô</i> | 校 | Schools |
| <i>kô</i> | 稿 | Drafts of a manuscript |
| <i>kô</i> | 行 | Banks |
| <i>koma</i> | 駒, コマ | Frames, panels. 駒 is virtually unused nowadays. |
| <i>ku</i> | 区 | Sections, city districts |
| <i>ku</i> | 句 | Haiku, senryû |
| <i>kuchi</i> | 口 | (Bank) accounts, donations (口 means "opening" or "entrance") |
| <i>kumi</i> | 組 | Groups, a pair of people (twins, a husband and a wife, dancers, etc.) |
| <i>kurasu</i> | クラス | School classes |
| <i>kyaku</i> | 脚 | Desks, chairs, long-stemmed glasses |
| <i>kyaku</i> | 客 | Pairs of cup and saucer |
| <i>kyoku</i> | 曲 | Pieces of music |
| <i>kyoku</i> | 局 | Board game matches (chess, Igo, Shogi, Mahjong); radio stations, television stations |
| <i>mai</i> | 枚 | Thin, flat objects, sheets of paper, photographs, plates, articles of clothing (see also: <i>chaku</i>) |
| <i>maki or kan</i> | 巻 | Rolls, scrolls, kan for volumes of book |
| <i>maku</i> | 幕 | Theatrical acts |
| <i>mei</i> | 名 | People (polite) (名 means "name") |
| <i>men</i> | 面 | Mirrors, boards for board games (chess, Igo, Shogi), stages of computer games, walls of a room, tennis courts, |
| <i>mon</i> | 門 | Cannons |
| <i>mon</i> | 問 | Questions |
| * * <i>nen</i> | 年 | Years, school years (grades); not years of age |
| <i>nichi</i> | 日 | Days of the month (but see table of exceptions below) |
| <i>nin</i> | 人 | People (but see table of exceptions below) |
| <i>ninmae</i> | 人前 | Food portions (without exceptions, unlike <i>nin</i> above) |
| <i>pêji</i> | ページ, 頁 | Pages |
| <i>rei</i> | 礼 | Bows during worship at a shrine |
| <i>rin</i> | 輪 | Wheels, Flowers |
| <i>ryô</i> | 両 | Railway cars |
| <i>sai</i> | 才 or 歳 | Years of age |

| | | |
|-----------------------------|---------|-------------------------------------------------------------------------------------------------------------------------|
| <i>sao</i> | 棹 | Chests of drawers, flags |
| <i>satsu</i> | 冊 | Books |
| <i>seki</i> | 席 | Seats, Rakugo shows, (drinking) parties |
| <i>seki</i> | 隻 | Ships |
| <i>shina</i> | 品 | Parts of a meal, courses (see also: <i>hin</i>) |
| <i>sha</i> | 社 | used for businesses, i.e. 会社 |
| <i>shiki</i> | 式 | Sets of things, such as documents or furniture |
| <i>shō</i> | 勝 | Wins (sports bouts) |
| <i>shu</i> | 首 | Tankas |
| <i>shū</i> | 週 | Weeks |
| <i>shurui</i> or <i>shu</i> | 種類 or 種 | Kinds, species |
| <i>soku</i> | 足 | Pairs of footwear, pairs of socks, stockings, and tabis. |
| <i>tai</i> | 体 | Images, person's remains, dolls |
| <i>tawara</i> | 俵 | Bags of rice |
| <i>teki</i> | 滴 | Drops of liquid |
| <i>ten</i> | 点 | Points, dots |
| <i>tō</i> | 頭 | Large animals, cattle, elephants (頭 means "head") |
| <i>tōri</i> | 通り | Combinations, puzzle solutions |
| <i>tsū</i> | 通 | Letters |
| <i>tsūwa</i> | 通話 | Telephone calls (see also: <i>han</i>) |
| <i>toki</i> | 時 | Time periods, a sixth of either day or night (in the traditional, obsolete way of telling time). See also: <i>jikan</i> |
| <i>tsubo</i> | 坪 | Commonly used unit of area equal to 3.3 square metres. |
| <i>wa</i> | 羽 | Birds, rabbits* (because of their ears); 羽 means "feather" or "wing". |
| <i>wa</i> | 把 | Bundles |
| <i>ya</i> | 夜 | Nights (see also: <i>ban</i>) |
| <i>zen</i> | 膳 | Pairs of chopsticks; bowls of rice |

Euphonic changes

Systematic changes occur when particular numbers precede counters that begin with certain phonemes. For example, *ichi* + *k* = *ikk-*, *roku* 六 + *h* = *ropp-*. The details are listed in the table below.

These changes are followed fairly consistently but exceptions and variations between speakers do exist. Where variations are common, more than one alternative is listed.

Jū is replaced by either *ju-* or *ji-* (じゅつ/じつ) followed by a doubled consonant before the voiceless consonants as shown in the table. *Ji-* is the older form, but it has been replaced by *ju-* in the speech of recent generations.

| Numeral | k- (か き や etc.) | s/sh- (さ し ャ etc.) | t/ch- (た ち ャ etc.) | h- (は ひ へ ほ ひ ャ ひ ャ ひ ャ) | f- (ふ) | p- (ぱ etc.) | w- (わ) |
|---------|-----------------|--------------------|--------------------|--------------------------|--------|-------------|--------|
|---------|-----------------|--------------------|--------------------|--------------------------|--------|-------------|--------|

| | | | | | | | |
|------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|--------------------------------------------------------|
| 1 <i>ichi</i> | <i>ikk-</i> 一つ | <i>iss-</i> いっさ | <i>itt-</i> いった | <i>ipp-</i> いっぱ | <i>ipp-</i> いっぱ | <i>ipp-</i> いっぱ | |
| 3 <i>san</i> | | | | <i>sanb-</i> さんば | <i>sanp-</i> さんぶ | | <i>sanb-</i> さんば |
| 4 <i>yon</i> | | | | <i>yonh-</i> よんは <i>yonp-</i> よんば | <i>yonf-</i> よんふ <i>yonp-</i> よんぶ | | <i>yow-</i> よわ <i>yomw-</i> よんわ <i>yonb-</i> よんば |
| 6 <i>roku</i> | <i>rokk-</i> ろっか | | | <i>ropp-</i> ろっぱ | <i>ropp-</i> ろっぱ | <i>ropp-</i> ろっぱ | <i>rokw-</i> ろくわ <i>ropp-</i> ろっぱ |
| 8 <i>hachi</i> | <i>hakk-</i> はっか | <i>hass-</i> はっさ | <i>hatt-</i> はった | <i>happ-</i> はっぱ | <i>happ-</i> はっぱ | <i>happ-</i> はっぱ | <i>happ-</i> はっぱ <i>hachw-</i> はちわ |
| 10 <i>jū</i> | <i>jikk-</i> じっか <i>jukk-</i> じゅっか | <i>jiss-</i> じっさ <i>juss-</i> じゅっさ | <i>jitt-</i> じった <i>jutt-</i> じゅった | <i>jipp-</i> じっぱ <i>jupp-</i> じゅっぱ | <i>jipp-</i> じっぱ <i>jupp-</i> じゅっぱ | <i>jipp-</i> じっぱ <i>jupp-</i> じゅっぱ | <i>jipp-</i> じっぱ |
| 100 <i>hyaku</i> | <i>hyakk-</i> ひゃっか | | | <i>hyapp-</i> ひゃっぱ | <i>hyapp-</i> ひゃっぱ | <i>hyapp-</i> ひゃっぱ | |
| 1000 <i>sen</i> | | | | <i>senb-</i> せんば | <i>senp-</i> せんぶ | | |
| 10000 <i>man</i> | | | | <i>manb-</i> まんば | <i>manp-</i> まんぶ | | |
| 何 <i>nan</i> | | | | <i>nanb-</i> なんば | <i>nanp-</i> なんぶ | | |

Exceptions

The traditional numbers are used by and for young children to give their ages, instead of using the age counter *sai* 歳. The kanji is sometimes written using the simpler kanji 才.

Some counters, notably *nichi* 日 and *nin* 人, use the traditional numerals for some numbers as shown in the table below. Other uses of traditional numbers are usually restricted to certain phrases, such as *hitotsuki* 一月 and *futatsuki* 二月 (one and two months respectively), *hitokoto* 一言 (a single word) and *hitotabi* 一度 (once).

Sometimes common numbers that have a derived meaning are written using different kanji. For example, *hitori* (alone) is written 独り, and *futatabi* (once more, another time) is normally written 再び instead of 二度. The counter for months *kagetsu* (derived from kanji 箇月) is commonly written ケ月.

Nana and *shichi* are alternatives for 7, *yon* and *shi* are alternatives for 4, and *kyū* and *ku* are alternatives for 9. Having said that, *nana*, *yon* and *kyū* are more commonly used. Some counters, however, notably *nin* 人 (people), *gatsu* 月 (month of the year), *ka/nichi* 日 (day of the month, days), *ji* 時 (time of day) and *jikan* 時間 (hours) take certain alternatives only. These are shown in the table below.

While *kai* 回 (occurrences) and *sen* 銭 (0.01 yen, obviously now rarely used) follow the euphonic changes listed above, homophones *kai* 階 (storeys/floors) and *sen* 千 (1000) are slightly different as shown below, although these differences are not followed by all speakers. Thus 三階 ("third floor") can be read either *sankai* or *sangai*, while 三回 ("three times") can only be read *sankai*.

| Numeral | nichi 日 | nin 人 | gatsu 月 | ji 時 | jikan 時間 | kai 階 | sen 千 |
|--------------|--------------------|------------------|--------------------|-----------------|--------------------|---------------|---------------|
| 1 | <i>tsuitachi</i> * | <i>hitori</i> | | | | | |
| 2 | <i>futsuka</i> | <i>futari</i> | | | | | |
| 3 | <i>mikka</i> | | | | | <i>sangai</i> | <i>sanzen</i> |
| 4 | <i>yokka</i> | <i>yonin</i> *** | <i>shigatsu</i> | <i>yoji</i> | <i>yojikan</i> | | |
| 5 | <i>itsuka</i> | | | | | | |
| 6 | <i>muika</i> | | | | | | |
| 7 | <i>nanoka</i> | <i>shichinin</i> | <i>shichigatsu</i> | <i>shichiji</i> | <i>shichijikan</i> | | |
| 8 | <i>yōka</i> | | | | | | |
| 9 | <i>kokonoka</i> | | <i>kugatsu</i> | <i>kuji</i> | <i>kujikan</i> | | |
| 10 | <i>tōka</i> | | | | | | |
| 14 | <i>jūyokka</i> | <i>jūyonin</i> | | | <i>jūyōjikan</i> | | |
| 20 | <i>hatsuka</i> | | | | | | |
| 24 | <i>nijūyokka</i> | <i>nijūyonin</i> | | | <i>nijūyōjikan</i> | | |
| <i>nan</i> 何 | | ** | | | | <i>nangai</i> | <i>nanzen</i> |

* But when counting number of days rather than days of the month, *ichinichi* is used. *Ippi* is also heard.

** Both *ikunin* 幾人 and *nannin* 何人 are used to mean "how many people".

*** In remote rural areas (ie. Northern Honshū and Eastern Hokkaido) older speakers might use *yottari*.^[1]

Ordinal numbers

In general, the counter words mentioned above are cardinal numbers, in that they indicate quantity. To transform a counter word into an ordinal number that denotes position in a sequence, *me* (目) is added to the end of the counter. Thus "one time" would be translated as *ikkai* (一回), where as "the first time" would be translated as *ikkaime* (一回目).

This rule is inconsistent, however, as counters without the *me* suffix are often used interchangeably with cardinal and ordinal meanings. For example, *sankai* (三階) can mean both "three floors" and "third floor."

Periods of time

To express a period of time one may add *kan* 間 to the following words: *byō* 秒, *fun* 分, *ji* 時, *nichi* 日 (and its irregular readings aside from *tsuitachi*), *shū* 週, *kagetsu* 箇月 and *nen* 年. Usage varies depending on the word, though. For example, omitting *kan* in the case of *jikan* 時間 would be a grave mistake, whereas *shūkan* and *shū* are both in frequent use. What's more, *kagetsukan* is rarely heard due to essentially being superfluous, the *ka* already functioning to express the length.

See also

- Japanese units
- Measure words
- Chinese measure word

References

- ↑ "Language Contact and Lexical Innovation" (PDF). Retrieved on 2007-02-14. Table 1. Native Counting in Japanese

Retrieved from "http://en.wikipedia.org/wiki/Japanese_counter_word"

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